
Subject: Infant Food Packages – Low Iron Infant Formula

Effective Date: February 28, 2007

Revised from: October 1, 2004

Policy: Infants will not be issued low iron formulas by the Kansas WIC Program. A low iron formula is defined as a nutritionally complete infant formula that contains less than 10 mg of iron per liter at standard dilution. A nutritionally complete infant formula does not require the addition of any ingredients other than water.

In 1999 the American Academy of Pediatrics (AAP) Committee on Nutrition released the policy statement, *Iron Fortification of Infant Formulas*. This policy statement concludes that iron is important for the rapid growth and development of infants during their first year of life. The AAP states that there are no known medical contraindications to iron-fortified formulas (e.g., iron overload syndromes, colic, constipation, cramps, or gastroesophageal reflux) and recommends that infants who are not breastfed or are partially breastfed should receive an iron-fortified formula from birth to 12 months. (AAP, Pediatrics 1999: 104:119-123.)

Procedure:

1. Review the concerns that lead to request for a low-iron infant formula with the caregiver.
 - a. Iron fortification caused gastrointestinal or infectious problems.
 - A controlled study by Oski (*Pediatrics*. 1980; 66:168-170 and a double-blind crossover study by Nelson et al (*Pediatrics*. 1988; 81:360-364) compared iron-fortified and low-iron formulas and found no differences in prevalence of fussiness, cramping, colic, gastroesophageal reflux, or flatulence. Moreover, therapeutic iron up to 6 mg/kg per day given to infants is well-tolerated. (*Pediatrics*. 1985; 75:352-355)
 - Hyams et al compared four commercial formula preparations (milk-based, milk-based with iron, soy-based and a protein hydrosylate) and breastmilk. Spitting, gassiness, and crying were of equal severity in all formula groups. (*Pediatrics*. 1995; 95:50-55)
 - These symptoms could also be caused by:
 - Incorrectly diluted formula or an unsanitary environment for formula preparation.
 - Ask or observe how bottles are prepared.
 - Ask how prepared formula is stored.
 - Ask what happens to partially used bottles of formula.
 - An unsafe water supply.
 - Ask if the source of water is a private well.

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- Ask if the water has been checked for safety and for nitrate content.
 - Illness - Ask about other symptoms such as fever, colds, flu, etc.
 - Inappropriate feeding practices, including inappropriate burping or handling of infant during feeding.
 - Obtain diet history and check for early introduction of solids and juices or potential forced overfeeding. Also check for inappropriate liquids such as tea, "Kool-Aid", soft drinks, water, etc.
 - Ask parent about burping and handling methods during feeding. Recommend gentle burping and handling of the infant after feeding.
 - Stressful home environment - Explore with the parent how things are at home. Infants are perceptive to surrounding environments -- especially family interactions.
- b. Iron fortification caused constipation. Lack of a bowel movement every day does not necessarily indicate constipation. Ask for specific description of symptoms such as frequency, color, and consistency of stools.
- c. Iron fortification caused vomiting.
- Many parents mistake spitting up for vomiting. Ask for specific information on amount and consistency of food usually refluxed. Ask if vomiting is projectile.
 - Evaluate the growth chart for adequate weight gain.
2. If the history indicates that the issue is formula sensitivity or an intolerance to milk-based infant formula, suggest changing to another iron-fortified formula. Allow at least several days before assessing results.
3. If the problem appears to be organic or psychologic pathology, refer to physician for evaluation.
4. Document the information in the infant's KWIC record.